

WHAT IS CLAIMED IS:

1. An apparatus for manufacturing liquid crystal display (LCD) devices, comprising:
at least one substrate bonding station for bonding unbonded first and second substrates,
5 wherein the substrate bonding station includes first and second sides;
at least one loader arranged at the first side of the substrate bonding station for loading
the unbonded first and second substrates into the substrate bonding station; and
at least one unloader arranged at the second side for unloading bonded ones of the first
and second substrates, wherein the substrate bonding station includes third and fourth sides,
10 wherein third side is proximate the fourth side.
2. The apparatus according to claim 1, wherein the at least one substrate bonding
station includes a plurality of substrate bonding stations.
- 15 3. The apparatus according to claim 2, wherein the plurality of substrate bonding
stations are arranged parallel to each other.
4. The apparatus according to claim 2, wherein the at least one loader includes a
plurality of loaders.
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5. The apparatus according to claim 4, wherein the plurality of loaders are arranged
parallel to each other.
6. The apparatus according to claim 4, wherein each loader loads the unbonded
25 substrates into a single substrate bonding station.
7. The apparatus according to claim 6, wherein each loader loads the unbonded
substrates into a plurality of substrate bonding stations.
- 30 8. The apparatus according to claim 2, wherein the at least one unloader includes a
plurality of unloaders.

9. The apparatus according to claim 8, wherein the plurality of unloaders are arranged parallel to each other.

10. The apparatus according to claim 8, wherein each unloader unloads the bonded
5 substrates from a single substrate bonding station.

11. The apparatus according to claim 10, wherein each unloader unloads the bonded substrates from a plurality of substrate bonding stations.

10 12. The apparatus according to claim 1, further comprising at least one hardening station for hardening a sealant material arranged between the bonded ones of the first and second substrates, wherein the at least one hardening station is arranged proximate the fourth side of the at least one unloader and wherein the at least one unloader loads the bonded ones of the first and second substrates into the at least one hardening station.

15 13. The apparatus according to claim 12, wherein the at least one hardening station includes a plurality of hardening stations.

20 14. The apparatus according to claim 13, wherein the at plurality of hardening stations are arranged parallel to each other.

15. The apparatus according to claim 13, wherein each unloader loads the bonded substrates into a single hardening station.

25 16. The apparatus according to claim 12, wherein a one-to-one correspondence exists between the at least one hardening station and the at least one loader.

17. The apparatus according to claim 12, wherein the at least one hardening station directs UV light to the sealant material.

30 18. The apparatus according to claim 12, wherein the at least one hardening station directs heat to the sealant material.

19. The apparatus according to claim 1, wherein the at least one substrate bonding station includes:

a lower chamber unit openings in the first and second sides;

5 an upper chamber unit including openings in the first and second sides, the upper chamber unit being raiseable and lowerable with respect to the lower chamber unit being joinable to the lower chamber unit;

an upper stage fixed to the upper chamber unit for securing the unbonded first substrate;

10 a lower stage fixed to the lower chamber unit for securing the unbonded second glass substrate; and

a sealing member provided on a surface of at least one of the upper and lower chamber units for sealing an interior space surrounding the first and second substrates, wherein the sealed interior space is definable by joined ones of the upper and lower chamber units.

15 20. A method of display device, comprising:

providing unbonded first and second substrates;

loading the unbonded first and second substrates through a first side of a bonding station;

bonding the loaded first and second substrates within the bonding station; and

20 unloading the bonded first and second substrates from the bonding station through a second side, different from the first side.